MAXIMAL L.I. SUBSET OF A V.S.

Let $V(F)$ be a f.d. v.s. $V(F)$ and $S \subseteq V$. Then S is said to be MAXIMAL L.I. sub of v.s V if

(i) S is a L.I. set.

(ii) no ~~subset~~ superset of S is L.I.

Eg: Let $V = \mathbb{R}^n(\mathbb{R})$. Then maximal L.I. sub of V is

(A) $\{e_1, \dots, e_n\}$ ✓ (B) $\{e_1, e_2, \dots, e_n, e_1+e_2\}$ not L.I.

(C) $\{e_1, e_2\}$ L.I. but not maximum (D) None.

MINIMAL SUBSET OF GENERATOR OF V.S.

Let $V(F)$ be a v.s. (F.D) and $S \subseteq V$. Then S is said to be MINIMAL subset of generator of $V(F)$ if

(i) $\langle S \rangle = V$

(ii) No proper subset of S generates V.

Eg. Let $V(\mathbb{R}) = \mathbb{C}(\mathbb{R})$. Then minimal subset of generator of V is

~~(1)~~ $\{1\}$ $L(1) = \{\alpha\} = \mathbb{R}$

~~(2)~~ $\{1+i\}$ $\Downarrow$ $L(1+i) = \{\alpha + i\alpha : \alpha \in \mathbb{R}\} \neq \mathbb{C}$ $2+3i \notin$

(3) $\{1, i\}$ $L(1, i) = \{\alpha + i\beta : \alpha, \beta \in \mathbb{R}\} = \mathbb{C}$

~~(4) $\{i\}$~~